IKO
Setting the Standard

IKO SALES INTERNATIONAL

Bitumen Roofshingles

ARMOURVENT® MULTI

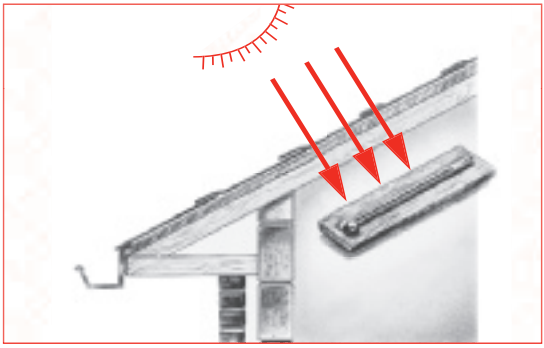
APPLICATION GUIDE VENTILATION

WHY VENTILATE A SHINGLE ROOF?

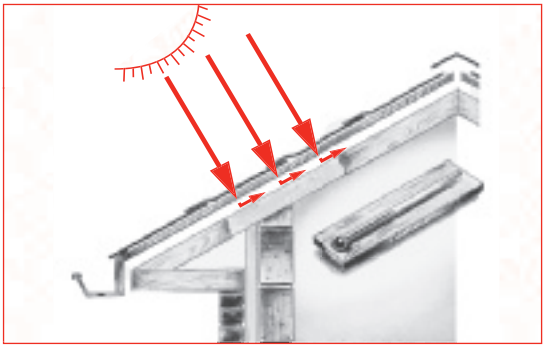
Unventilated shingle roofs will cause high temperatures inside. This will age the shingles much quicker and at the same time create unhealthy, moist air to live in.

Ventilating the roof will lower the temperature of both the shingle roof and the space directly underneath, leaving the roof structure unaffected and preventing accumulation of moisture in the attic.

Ventilating your roof will equalize the temperature of the outer and inner roof. Your roof structure will then be able to withstand sudden temperature changes. Especially those, which are created by thunderstorms during the summertime. Ventilating the roof also prevents ice dams. Ice dams are the results of continuous freezing and thawing of snow due to escaping heat through the roof deck being backed up with frozen slush. If it occurs, water may be driven under the roof.



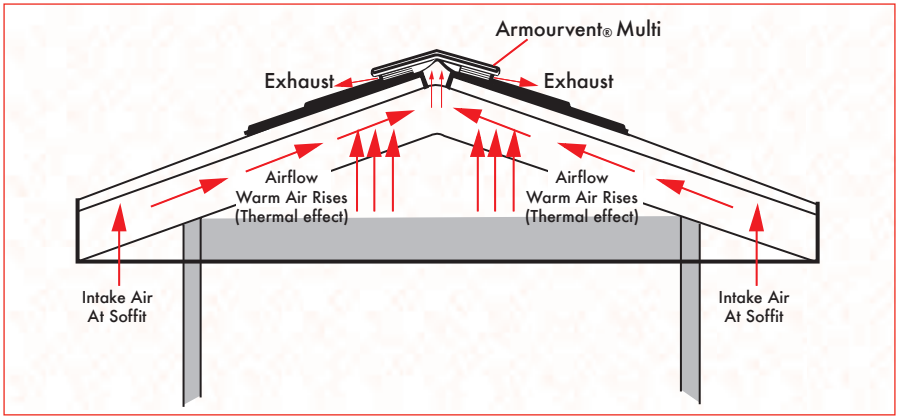
Unventilated: high temperature inside. Without air gap between insulation and roof deck: condensation forms and the roof structure is damaged.



Ventilated: lower temperature inside. With air gap between insulation and roof deck: air escapes via ridge vents, leaving the roof structure unaffected.

A "balanced system" of ventilation, which is the key to proper roof ventilation, allows heat and water vapor to escape from the roof system. Air must be able to circulate freely between insulation and the nailable roof deck, from the eaves to ridges. This will extend the life of your roof, increase your living comfort and regulate the moisture in your house, which will generate lower utility bills because your dryer insulation will function better.

A BALANCED SYSTEM: The Key to Proper Roof Ventilation.



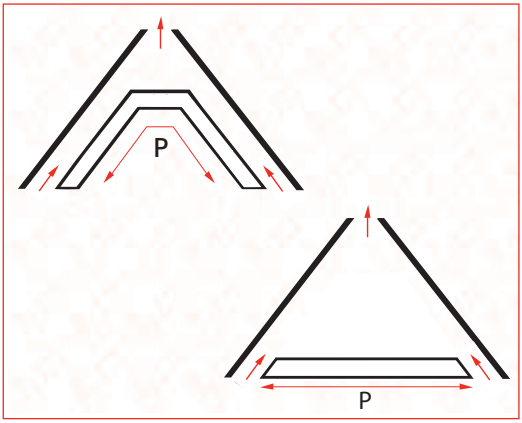
The most important factor in roof ventilation is the need for a "balanced system". This means for every cm^2 of air exhausted, it must be balanced by providing the same amount of air intake at the eaves.

Providing a balanced system assures that damaging heat and moisture is being vented out of the attic, protecting the roof from premature deterioration, costly repairs. If an attic has a properly balanced system, the airflow will move from the bottom of the attic to the top, pushing out heat and moisture in a natural flow using air pressure, thermal effect and diffusion. If the system were to be unbalanced, and the Net Free Area (NFA) at the ridge is higher than at the eave, a reverse airflow can occur causing an opposite effect to what is desired. The airflow will come from the top of the house and push down toward the eaves. As a result, heat and moisture are not allowed to escape and additional air and moisture can be drawn into the home.

Recognized by builders throughout the industry, are the standards for static ventilation, as found in the requirements for proper ventilation. These requirements call for a ratio of 1:300. This means one cm^2 of ventilation for every 300 cm^2 of insulated roof area. In addition, specifications for good attic ventilation require a balanced system – 50% of the vents at the eave and 50% at the upper portion of the roof.

CALCULATING THE NET FREE AREA OF VENT OPENINGS

The air gap between the insulation and the roof deck must be 4 to 6 cm. Air should flow in from the bottom of the roof (eaves) and out through the top of the roof (ridge). The air flow between the eaves and ridge vents must be unobstructed (by insulation or roof beams) to ensure cross-flow ventilation. The total required net free area (NFA) of vent openings is a function of the insulated roof area (P) and the slope of the roof.



SAMPLE ROOF STRUCTURES

Roof slope	Required NFA of vent openings
15° - 40°	P÷300
41° - 85°	P÷600

Ventilation should be equally divided among the number of vents at eaves and ridges.

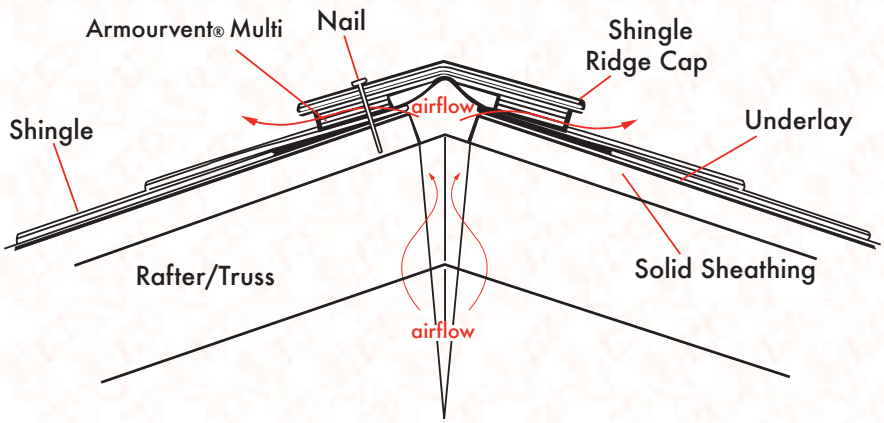
Example: P = 120 m²; Roof slope = 35°; NFA Armourvent® Multi = 275 cm²/m
Total required NFA of vent openings:
120÷300 = 0,4000 m² = 4000 cm²
Minimum linear m of vents required over total roof:
4000/275 = 14,54 m
Linear m of vents at ridge:
14,54÷2 = 7,27 => 7,50 m.
Linear m of vents at eaves:
14,54÷2 = 7,27 => 7,50 m

NOTE: Roofs with vapour barriers need 40% less ventilation. In certain regions (mountainous areas, the coast) special building regulations may apply.

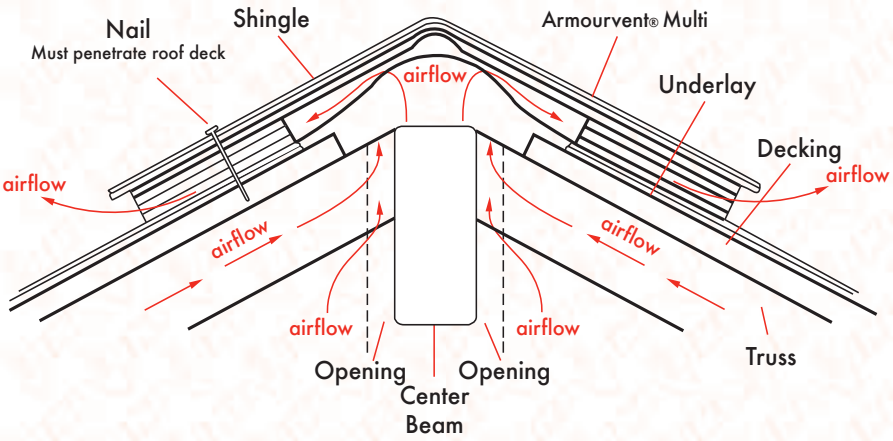
	ARMOURVENT® MULTI	ARMOURVENT® MULTI PLUS
Dimensions	6 m x 22,80 cm	6 m x 28,50 cm
Used for	Monarch	Monarch-Diamant
	Armourglass (Victorian)	Diamant
		DiamantShield
		BiberShield
		ArmourShield
		Superglass (-Biber)
		Marathon Ultra Accessory (Cambridge)
Roof Pitches	15° - 60°	15° - 60°
Ventilation area	275 cm²/m	275 cm²/m

DETAILED FIGURES OF IKO ARMOURVENT® MULTI

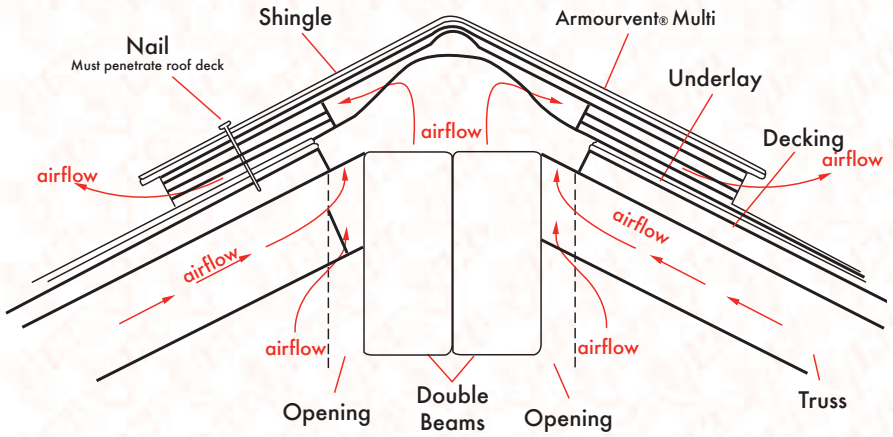
1 *Detail: Armourvent® Multi on ridge application. (rafter)*



2 *Detail: Armourvent® Multi on ridge application. (single beam)*

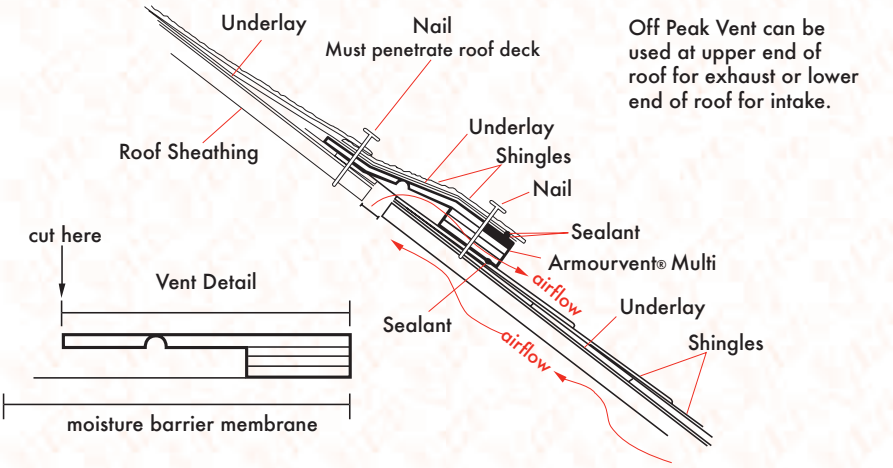


3 *Detail: Armourvent® Multi on ridge application. (double beam)*



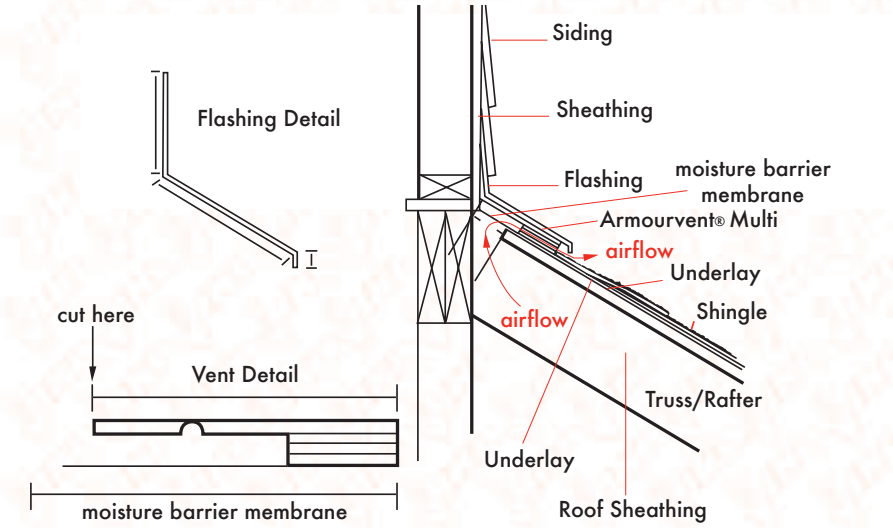
4

Detail: Armourvent® Multi off peak application (intake or outlet)

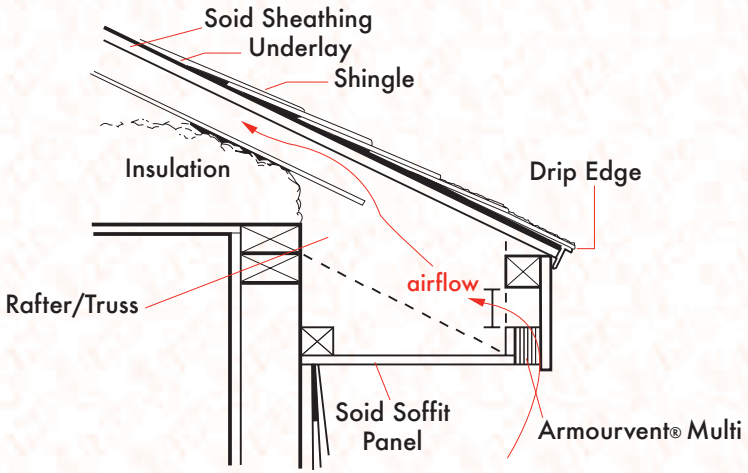


5

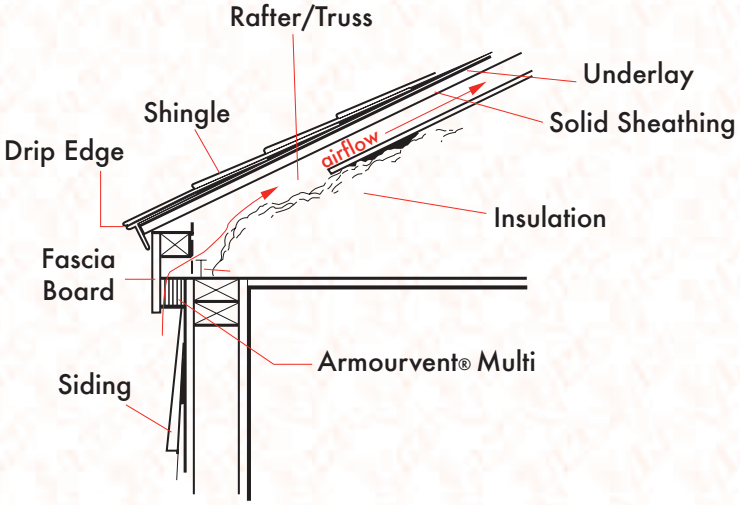
Detail: Armourvent® Multi shed roof application



6 *Detail: Armourvent® Multi eave application. (wide overhang)*



7 *Detail: Armourvent® Multi eave application. (narrow overhang)*

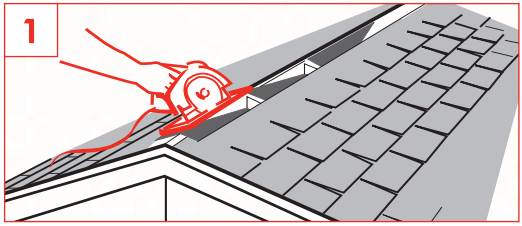


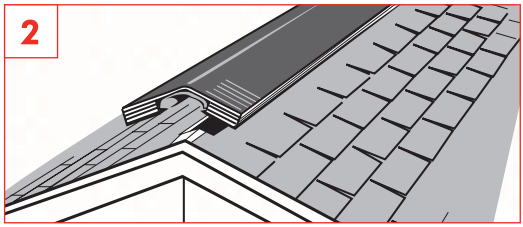
RIDGE VENT INSTALLATION INSTRUCTIONS

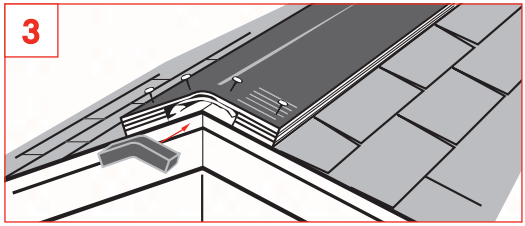
The length of slot cut along the roof ridge controls the amount of ventilation. Remember, for a very attractive roofline, it is recommended that IKO Armourvents® Multi are installed along the entire ridge of the roof.

I. RIDGE SLOT PREPARATION

Cut a 5cm slot (2,5 cm on each side of ridge) along the ridge(s). For a roof with a centre beam, a 9 cm slot should be cut (4,5 cm on each side of the ridge). A minimum of 15 cm must be left uncut on each end of the ridge. Once the slot is cut and any overlapping shingles covering the ridge are trimmed and removed, the ridge is ready for vent installation.







II. VENT PLACEMENT ON RIDGE

Roll out and place the IKO Armourvent® Multi along the entire length of slot also covering the 15 cm minimum uncut ridge on both ends. Secure at the lead edge, inserting the end cap. Pull the vent tight and secure at about 3 m. Pull the rest of the vent tight and secure, inserting the end cap. Multiple lengths of vent can be joined by butting the sections tightly together. We require applying IKO Shingle Stick® to the shingles, before installing the vent on the ridge. This sealant should fill any voids between the bottom of the vent and the surface of the shingle.

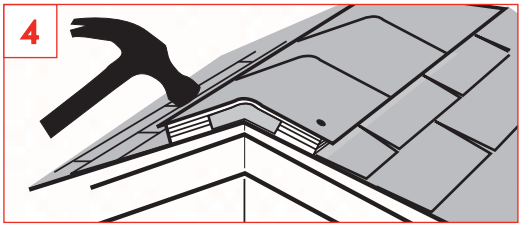
III. END CAP INSTALLATION

Install end caps. Pull apart a pre-cut section of the foam end cap found with the IKO Armourvent® Multi. Use a utility knife, to make a cut in the moisture barrier membrane 1,5 cm on each side, back from the end of the section.

Use IKO Shingle Stick®, coat both sides of the moisture barrier membrane between the foam end cap and the vent underside for a tight seal. Attach vent in the corners to the roof and nail vent and end caps in place to roof deck. Drive two nails through the vent and foam end cap to hold foam in place on the ends of the ridge only. Nails should penetrate the wood roof deck at least 1,5 cm.

IV. RIDGE SHINGLE INSTALLATION

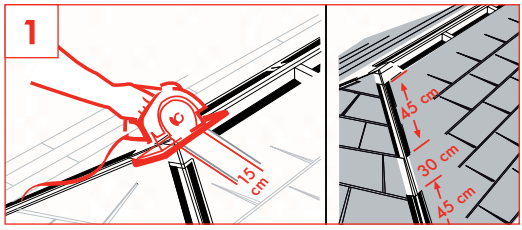
Nail ridge shingles with roofing nails in a common overlapping pattern. Nails should penetrate the wood roof deck at least 1,5 cm. The vent has been installed properly if the bottom of the vent is flat on the roof and the peak is slightly rounded.



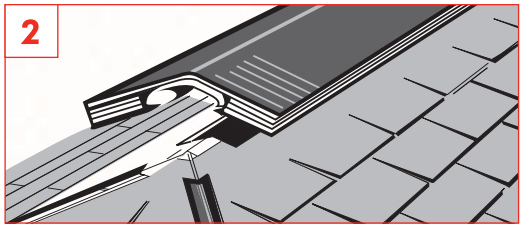
HIP VENT INSTALLATION INSTRUCTIONS

I. HIP SLOT PREPARATION

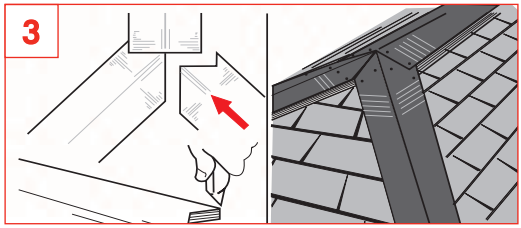
To maintain structural integrity, one continuous slot is not recommended on hip applications. Start ventilation preparation by leaving 15 cm of hip uncut from where the ridge and hip meet. Cut a 9 cm width slot for ventilation (4,5 cm on each side of the hip). Hip slot should be 45 cm inlength, spaced with a 30 cm uncut area between each 45 cm opening. The slot for ventilation should not be cut any lower than 1/3 of the roof to maintain a balanced ventilation system.



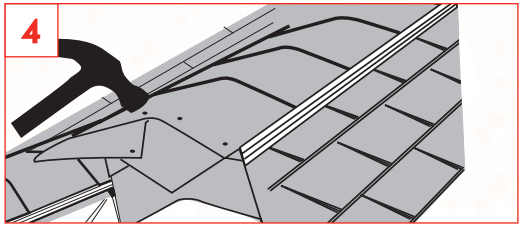
II. VENT PLACEMENT ON HIP



Install a minimum of 2 cap shingles at the bottom of the hip. If the vent is not being run the entire length of the hip, the vent should overlap a minimum of 2 cap shingles at the end of the vent. Before installing the vent on the hip, lay a bead of IKO Shingle Stick® on each side of the pre-cut slots to create a seal. The bead of sealant should be applied approximately 2,5 cm from the edge of the pre-cut slot.



III. HIP AND RIDGE VENT TRANSITION

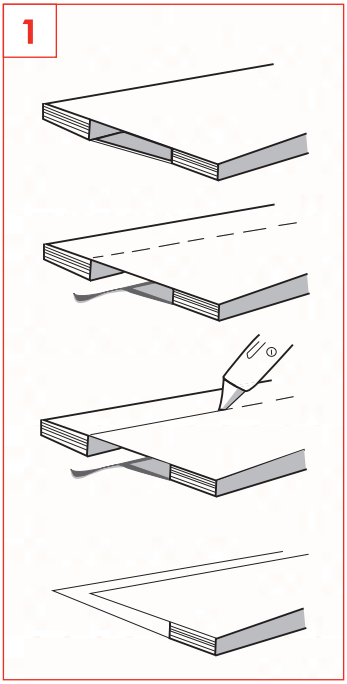


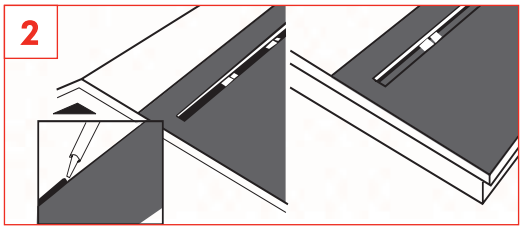
Using a utility knife to trim the end of IKO Armourvent® Multi. Insert the foam end cap under the IKO Armourvent® Multi where it is at full width. Fasten vent for hip at point where it meets ridge. Roll out or place the vent all of the way down the hip, covering 2 pre-laid cap shingles at the bottom of the hip. Go back over hip vents and fasten at 10 cm intervals. If the Armourvent® Multi is not being run the entire length of the hip, use the cap shingles to create a transition. Use sealant to fill any void left between the shingles and the remaining top layer of the vent. Be sure to apply roofing sealant to any spaces left by cap shingle used for transition. If 2 or more sections of IKO Armourvent® Multi are being joined together, an end cap MUST be installed into each end of the joining sections. Repeat on all hips.

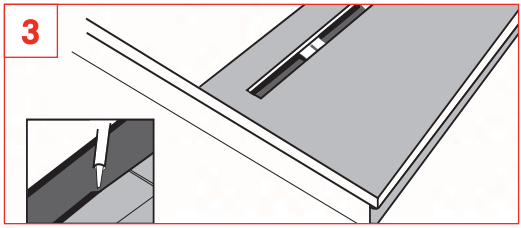
IV. HIP AND RIDGE SHINGLE INSTALLATION

Apply the shingles to the hip and then to the ridge. Nail hip shingles with roofing nails in a common overlapping pattern. Nails should penetrate the wood roof deck at least 1,5 cm. It is important when installing this vent that you maintain the pitch of the roof. The vent has been installed properly if the bottom of the vent is flat on the roof and the peak is slightly rounded.

OFF PEAK VENT INSTALLATION INSTRUCTIONS







I. VENT PREPARATION

Using IKO Armourvent® Multi Plus, peel 7,5 cm of the moisture barrier membrane away from one entire side of the vent. Using a utility knife, cut off 7,5 cm of the corrugated air return at one entire side of the vent.

II. RIDGE EXHAUST/LOWER INTAKE

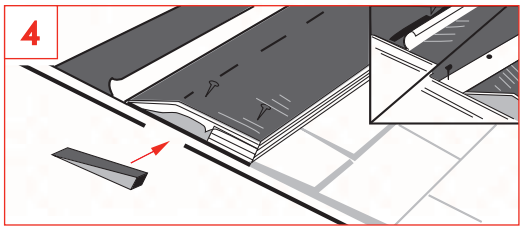
Cut a horizontal 2 cm slot in the deck where the desired ventilation is needed. A minimum of 15 cm must be left uncut on each end of the slot. Install an underlay onto the deck and trim underlay from slot opening. Caulk edge of underlay.

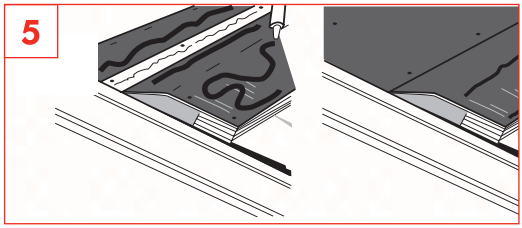
III. SHINGLE INSTALLATION

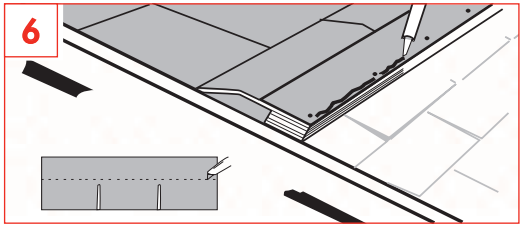
Install shingles, IKO Shingle Stick® the top edge of shingles and trim shingles from slot opening.

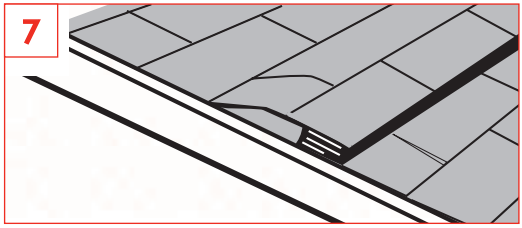
IV. VENT INSTALLATION

Install IKO Armourvent® Multi Plus along the slot opening with the remaining 7,5 cm corrugated air return placed approximately 2,5 cm below the ventilation slot. Nail down the roll, starting with the lead edge, middle and other end through the 7,5 cm air return. Be sure the moisture barrier membrane is pulled tight and lay a bead of IKO Shingle Stick®, 11,5 cm above the slot, below the moisture barrier membrane. Nail through the plastic cap and moisture barrier membrane into the deck. Install foam end caps.









V. IKO SHINGLE STICK®

Lay a bead of IKO Shingle Stick® on front edge of IKO Armourvent® Multi Plus. IKO Shingle Stick® on top and behind the vent. Install an underlay on top of vent (a minimum of 40 cm). Install underlay from the vent to the ridge. Lay a bead of IKO Shingle Stick® on front edge of underlay.

VI. TABS REMOVAL

Using a utility knife, remove tabs from shingles. Nail this starterstrip. Nails should penetrate the wood roof deck at least a 1,5 cm. Lay a bead of IKO Shingle Stick® on the front edge of the starterstrip.

VII. SHINGLE INSTALLATION

Install a minimum of one course of shingles, lapped on top of starterstrip, over vent.

ARMOURVENT® MULTI IS MULTI-FUNCTIONAL:

- 2 sizes available for all types of IKO shingles
- Can be used for a wide variety of sloped roofs
- Can be used for ridge, hip, soffit and off peak ventilation

ARMOURVENT® MULTI CAN BE APPLIED VERY QUICKLY:

- Rolls can be cut to any desired length
- Easy to handle
- No special tools are required
- Easy fastening method
- One pass application

ARMOURVENT® MULTI IS COST EFFICIENT:

- Less openings have to be made
- Very fast application

ARMOURVENT® MULTI IS A HIGHLY SOLID MATERIAL:

- Does not crush when nailed

IKO Sales International nv
Member of the IKO Group - I.Z. Ravenshout 3.815 - 3945 Ham - Belgium

www.iko-shingles.eu